

# *Project Baseline Summary Report*

Data Source: **EM CDB**

Operations/Field Office: **Idaho**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory**

Project **ID-WM-103 / INEEL Transuranic Waste**

Report Number: **GEN-01b**

Print Date: **3/10/2000**

HQ ID: **0187**

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## **General Project Information**

### **Project Description Narratives**

#### **Purpose, Scope, and Technical Approach:**

Purpose: The purpose of the INEEL Transuranic (TRU) Waste Project is to provide management for approximately 64,724 m3 of TRU-contaminated TRU waste, generated by nuclear defense research and production operations and shipped to the Idaho National Engineering and Environmental Laboratory (INEEL) for interim storage at the Radioactive Waste Management Complex (RWMC). The stored waste includes both contact (CH)- and remote (RH)-handled wastes, mixed and non-mixed wastes, and small volumes of non-defense TRU-contaminated (i.e., special case) wastes, which have to be managed in compliance with the Hazardous Waste Management Act (HWMA) RCRA Part B Permit and with requirements delineated in the Spent Nuclear Fuel Settlement Agreement (SA) between DOE, the Navy and the State of Idaho. The purpose of this project is to implement requirements to allow disposal of waste at WIPP, complete removal of 3,100m3 of waste by December 30, 2002, maintain safe, RCRA-compliant storage for TRU-contaminated waste stored at RWMC; develop characterization and certification capability for stored RH-TRU waste to support disposal of this waste at WIPP; provide RWMC base facility operational support and support for other Environmental Management (EM) programs.

Scope: Modification and upgrade of existing facilities and nondestructive waste characterization systems will be completed to support implementation of WIPP requirements and to improve operational capability to ensure 15,000 drums (3,100 m3) of untreated TRU waste can be certified for shipment and disposal at WIPP by December 31, 2002, in accordance with SA requirements. The originally scheduled May 1998 WIPP opening date for mixed waste has been delayed until October 1999. Annually, about 5,000 - 6,000 drums of Rocky Flats Plant (RFP)-generated waste will be retrieved from RCRA-compliant accessible storage and characterized to determine waste package compliance with WIPP disposal and transportation requirements. Previously assumed average certification rates of 70% will not be achievable and have been reduced to 50% due to delays in implementing transportation study results into the TRUPACT-II Safety Analysis Report for Packaging (SARP) and obtaining Nuclear Regulatory Commission approval. New tasks, including certification enhancements and expanded gas generation testing, will be implemented to increase the amount of waste that can be qualified for shipment to offset delays in obtaining relief from current restrictive TRUPACT-II shipping criteria. The INEEL will provide a majority of the waste flow to support WIPP operations beginning October 1999. It is assumed that the WIPP Part B Permit is finalized and not more restrictive than current characterization requirements delineated in QAPP Rev. 0, and current disposal requirements do not change. It is assumed that use of existing historical data on solidified waste forms will be accepted by the New Mexico Environment Department (NMED). Only 55-gallon drums and drums overpacked in Standard Waste Boxes (SWBs) will be shipped to WIPP.

Safe and RCRA-compliant storage operations will continue for CH- and approximately 85 m3 of RH-waste. Earthen-covered waste will continue to be stored under current waste management practices until retrieval is initiated by the Advanced Mixed Waste Treatment Facility (AMWTF) in 2003. Small volumes of CH- and RH-waste generated by INEEL activities, or by activities performed by others for the INEEL, will be stored. RCRA closure of air support buildings will be completed in accordance with Part B Permit requirements. The AMWTF is assumed to manage disposition of most stored CH-TRU waste not shipped to WIPP as part of the 3100m3 SA milestone by Dec. 31, 2002. Management of waste that does not meet AMWTF Waste Acceptance Criteria will be provided by this PBS through 2006 and then turned over to the Long-Term Treatment Storage and Disposal Project. This includes waste generated by the AMWTF during retrieval of waste and waste from Environmental Restoration (ER) or Deactivation and Decommissioning (D&D) operations. One storage module will be retained by the M&O for storage of this waste, the volume of which is presently unknown. Wastes not processed by the AMWTF will be evaluated and disposition plans developed to ensure that all INEEL stored TRU waste is disposed no later than 2018 to meet SA requirements. At present, estimates concerning the volume of CH-TRU waste that may be rejected by

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## **Project Description Narratives**

AMWTF can not be determined. Additional funding will be required, once this inventory is known, to complete disposition of all CH-TRU no later than 2018. A portion of the RH-TRU waste inventory currently stored in the Intermediate Level TRU Storage Facility (ILTSF) will be retrieved and overpacked into shielded containers for above ground storage in the Waste Storage Facility (WSF) until final dispositioning. RH-TRU waste will be characterized, certified, repackaged, and transported offsite for final disposal by 2006. Final RH-TRU transportation and disposal requirements are presently undefined.

Facility support services, including utilities, common support systems, facility maintenance, will be provided. Environmental, safety, and health documents (e.g., SAR, RCRA Part B permit, Air Permit) will be maintained and revised to support ongoing and planned projects. Required monitoring and inspections will be performed to support TRU operations safety and to support the AMWTF project between 2003 to 2007. Technical expertise, services, and access to TRU facilities and equipment will be provided to support the development, evaluation, and demonstration of new technologies supporting EM, the National TRU Program, and treatment needs. Interface and support for waste treatment at the AMWTF Project will be provided. Transition and turnover of the INEEL TRU Storage Area-Retrieval Enclosure (TSA-RE) and TRUPACT Loading Facility (TLF) and equipment to the AMWTF project will be completed in 2003.

Technical Approach: Upgrades to existing facilities and equipment will continue to improve waste characterization system availability and reliability, and to mitigate the current 50% certification rate. Specifically, a second gamma spectrometer will be implemented to improve operational throughput; additional spare parts for waste examination systems will be procured to increase mean-time-to-failure and reduce mean-time-to-repair; and methods will be developed to mitigate transportation restrictions by modifying current waste packaging and improving gas generation testing capability. Wastes will be retrieved from accessible storage, characterized, using nondestructive methods, including real-time radiography passive-active neutron assay, and gamma ray spectroscopy, headspace gas sampling, and gas analysis at the RWMC. A portion of the waste will be selected and intrusively sampled at the Argonne National Laboratory-West (ANL-W) Waste Characterization Chamber. It is assumed that ANL-W will be available for intrusive characterization and sampling of debris and solidified waste forms. Non-debris (i.e., sludge) drums will be cored and a composite sample analyzed for RCRA constituents at the Idaho Nuclear Technology and Engineering Center (INTEC) Analytical Chemistry Laboratory in accordance with WIPP requirements. Debris drums will be visually examined to verify nondestructive examination system performance. Data generated by the characterization, examination and certification processes will be validated and transmitted for approval by WIPP. Approved and certified waste containers will be assembled into payloads for loading in the TRUPACT-II shipping container and shipping to WIPP. The shipping rate will be 940.4m<sup>3</sup>, 974.7m<sup>3</sup>, 1029.6m<sup>3</sup>, and 166.6m<sup>3</sup> per year during the period FY 2000 through 2003, respectively, to meet the 3,100m<sup>3</sup> SA milestone. The scope performed in FY-2000-2003 represents a 10-fold increase in production levels over FY-1997 operating levels. It is assumed that sufficient TRUPACT-II shipping containers and transporters are available, funded by DOE-CAO/WIPP, and will not impact meeting the SA milestone.

The Certified and Segregated (C&S) air support building will be decommissioned by PBS ID-ER-110, D&D. The remaining air support building will be used for material storage. About 18 m<sup>3</sup> of newly generated non-mixed RH-TRU waste from ANL-East and Naval Reactors Facility (NRF) will be received and placed in storage. One RCRA-compliant storage module will be available for the potential storage of treated TRU waste generated by the Pit 9 ER Project located at the RWMC. One RCRA-compliant storage module will be available to the AMWTF by June 1999 per contract agreements. RH-TRU waste drums will be retrieved from the ILTSF, overpacked into shielded containers, and stored above ground in the Waste Storage Facility.

Characterization, certification, and transportation capabilities for RH-TRU will be developed. Assay technologies will be developed in conjunction

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## **Project Description Narratives**

with the EM-50 Mixed Waste Focus Area. Development of non-destructive assay (NDA) capability for RH-TRU waste and for CH-TRU waste with shielded RH components was identified (OST Tech. ID 2053). This need has been submitted to the Site Technology Coordination Group. Venting and headspace gas sampling system capability will be implemented. Characterization, certification, and any necessary repackaging will be performed using modular equipment and using existing facilities. Certification of stored RH-TRU will be initiated in 2003 for shipment to WIPP. Disposition of currently stored RH-TRU will be completed in 2006.

Effective interface with the AMWTF Project will continue to support treatment plant construction without impacting the shipment of waste to WIPP to meet the SA. Transition and turnover of facilities and equipment supporting AMWTF will be completed in 2003. Storage of waste not managed by AMWTF will continue through 2006. Waste not managed by AMWTF will require evaluation and development of disposition plans for turnover to the Long-Term TSD Project.

### **Project Status in FY 2006:**

A minimum of 3,100 m3 of TRU waste will be removed from Idaho by December 31, 2002, to meet the Settlement Agreement milestone. Decontamination and RCRA closure of two air support buildings will be completed no later than FY-1999. Transition and turnover of the TSA-RE and TLF facilities and equipment to the AMWTF Project will be completed in 2003. RWMC Facility Operations Support and RH-TRU waste storage, including monitoring and inspections in the WSF, will continue through 2006. Disposition of currently stored RH-TRU waste will be completed in 2006. By 2007, responsibility for RWMC Facility Operations will be transferred to the Long-Term TSD Project (PBS-ID-WM-107), including wastes not managed by the AMWTF.

### **Post-2006 Project Scope:**

This project will terminate in 2006. All remaining activities associated with TRU waste will be transferred to the AMWTF Project (ID-WM-105) and the Long-Term TSD project (ID-WM-107).

### **Project End State**

Removal of 3,100 m3 of TRU waste from Idaho will be completed meeting the commitments made in the Settlement Agreement. This volume of waste also supplies the majority of waste to WIPP during the ramp-up of operations at WIPP. Compliance with RCRA requirements for mixed TRU-contaminated waste is achieved by storage of accessible waste in RCRA-compliant storage modules, satisfying a 1992 State of Idaho Consent Order (CO). Safe and RCRA-compliant storage operations for CH and RH wastes has been provided. Earthen-covered stored TRU waste areas have been maintained in accordance with interim status requirements. The RWMC base facility has been maintained and is in compliance with requirements. Transition and turnover of some RWMC TRU waste facilities and equipment to the AMWTF Project will be completed in 2003. Safe and environmentally compliant management of facilities and waste not addressed by AMWTF will be performed through 2006. After 2006, management of these facilities and waste will be performed by the Long-Term TSD Project, thus ending the INEEL TRU Project.

### **Cost Baseline Comments:**

Detailed cost estimates have been developed for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. The baseline reflects the scope to be accomplished under the final FY 1999 appropriation and all required outyear compliance scope. Cost estimates are based on FY-1999 dollars with escalation of 2.1% applied annually on a compounded basis for the outyears.

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## **Project Description Narratives**

Key planning assumptions include: No significant change to current disposal requirements (WIPP-WAC Rev.5; QAPP Nov. 1996; QAPD April 1996); final WIPP RCRA Part B Permit requirements are not more restrictive than QAPP Rev.0 criteria; the average certification rate for waste drums meeting WIPP requirements is 50%; 80% operating efficiency rate is achieved during SWEPP production operations; WIPP opens for mixed waste disposal in October 1999; only accessible stored RFP waste will be used; adequate TRUPACT-II and transporter availability with transport funding provided by DOE-CAO/WIPP; use of existing historical data on solidified waste forms will be accepted by NMED; the M&O retains one storage module to support storage of waste that does not meet AMWTF Waste Acceptance Criteria and Pit 9 waste; AMWTF will manage disposition of stored CH-TRU waste remaining after completion of Dec. 31, 2002 SA milestone.

### **Safety & Health Hazards:**

The RWMC has significant inventory of stored radioactive and mixed waste. Retrievable stored TRU and mixed TRU waste is located in the TSA, which is also used to store TRU-contaminated and mixed wastes. The hazards from the retrievable stored waste are radiation, contamination, and chemical exposure to RWMC personnel. RH-TRU is stored in below grade steel vaults on the ILTSF or in shielded overpacks to allow contact-handled storage. Evidence of inspections conducted suggests this waste is undergoing various stages of container degradation. A release to the environment is possible if containers are allowed to continue to degrade in these steel vaults due to the humid internal vault environment. In general, the retrievable stored waste does not pose a significant hazard to the public due to its remote location and storage configuration. Both CH and RH waste contain radiological and hazardous constituents. The hazardous constituents consist mainly of volatile organics that are contained in EPA hazardous waste codes F001, F002, F003, F004, and F005. They are regulated under RCRA and TSCA. These hazards are described in the RWMC Safety Analysis Report (SAR) [INEL-94/0226 Rev.2]. It should be noted that the SAR also addresses the hazards associated with low-level waste disposal operations, as described in PBS ID-WM-101 INEEL LLW/MLLW/Other Waste Program. This PBS also provides the technical scope to address the environmental impacts and performance assessment of the Subsurface Disposal Area (SDA).

The RWMC poses the same normal occupational hazards that would be present in a similar industrial facility that stores, handles, examines, receives and ships radioactive waste. The authorization basis for the work performed in this PBS is the RWMC SAR and the RCRA Part B Permit for the RWMC Facility.

### **Safety & Health Work Performance:**

The requirements necessary to accomplish the work safely are identified in the SAR/TSR, the RCRA Part B Permit and the Health and Safety Program for the following functional categories: Radiation Protection, Nuclear Safety, Emergency Preparedness, Fire Protection, Industrial Safety, Industrial Hygiene, and Management Oversight. S&H resources are planned and allocated into these categories by cost centers through the work breakdown structure and resource loaded into the project for each fiscal year.

Resources necessary to maintain compliance with regulatory requirements driven by Industrial Safety, Industrial Hygiene, Fire Protection, Quality Assurance, Environmental Protection, Radiological Control, training, and Emergency Preparedness services will be provided. Documents will be reviewed and revised as necessary. The TRU Program will support commitments to Safety Management initiatives, including implementation of Integrated Safety Management (ISM) and achieving Voluntary Protection Program (VPP) Star status, and respond to external reporting requirements.

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## **Project Description Narratives**

Environmental regulatory support will include RCRA Part B Permit revision and implementation; revisions of the Waste Characterization Plan, the RWMC Soil Management Plan, the RWMC Waste Minimization Plan and Waste Minimization Procedure; preparation of various periodic required regulatory reports; development of RCRA closure plans; audit support, compliance deficiency correction, and self-assessments. The requirements of 10 CFR-835, Occupational Radiation Protection, and the DOE Radiological Control Manual have been integrated into the work planning and control documents. The INEEL Infrastructure Support Services contained in PBS's ID-OIM-109, Health Physics Instrument Laboratory, and ID-OIM-102, Idaho Chemical Processing Plant Non-Process Plant Operations, provides general landlord services for all INEEL programs necessary to support the EM Mission.

Activities to improve worker safety will continue. Maintenance and operational procedures will implement improved processes for hazard identification and mitigation and use of worker involvement in development of work control documents. A facility hazard database will be maintained. A structured self-assessment program will continue to evaluate facility and operational activities. Self-assessments are performed using worker involvement to ensure effectiveness.

### **PBS Comments:**

Compliance with TRU-contaminated waste conditions delineated in the Spent Nuclear Fuel Settlement Agreement provides for continued receipt of DOE spent nuclear fuel at the INEEL. Continued receipt of this fuel supports national efforts to consolidate fuel and implementation of nuclear nonproliferation policies. The management of TRU waste described in this PBS supports meeting the TRU waste Settlement Agreement milestones. Other conditions stipulated in the Agreement include, among others, the removal of all spent fuel by January 1, 2035; treatment of all high-level waste currently at the INEEL so it is ready for movement out of Idaho or disposal by 2035; and treatment of existing spent fuel, high-level waste, and TRU waste to permit ultimate disposal outside of Idaho. Failure to meet the substantive obligations or requirements of the Settlement Agreement will result in suspension of shipments of DOE spent fuel to the INEEL and significant fines.

The INEEL is the major source of TRU waste for shipment to WIPP in the near-term and is a lead site for initiating shipments to WIPP in May 1998. Demonstrating capability to characterize, certify and transport waste from a major site is an important aspect of DOE obtaining approvals to initiate disposal operations at WIPP. Meeting the Consent Order milestone for achieving RCRA-compliant storage for mixed waste demonstrates ability to comply with federal regulations and maintains working relationships with Idaho and other stakeholders to allow other DOE missions to proceed.

Until contractual scope of the AMWTF project is fully determined, the TRU project has been extended through 2006. Responsibility for any CH-TRU waste remaining at the facility will be transferred to the AMWTF Project by 2003. Waste not acceptable to the AMWTF will be transferred to the Long-Term TSD Project in October 2006. Facilities that will be deactivated during the lifetime of this project will be decommissioned in accordance with D&D Projects PBS-ID-ER-110.

### **Baseline Validation Narrative:**

The FY 1999 and FY 2000 baseline was reviewed by M&O Waste Operations (WO) Management (most recently September 19998) and by an internal DOE-ID review (most recently in October 1998). Comments were provided to the M&O on September 9, 1998 via letter from Lori Fritz to Michael

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## Project Description Narratives

Wolters (CF&AO-EBSD-JB/KDL-98-071), "FY 1999 Baseline Validation." The objective was to determine whether the M&O supporting documentation is current, accurate, complete, relevant, and reasonable. The baseline documentation was conditionally approved pending revision to address comments attached to the referenced letter. Comments were incorporated into the baseline and it was resubmitted to DOE-ID. Final baseline approval was received from DOE-ID December 21, 1998 via letter from Lori Fritz to Michael Wolters (CF&AO-EBSD-KDL-99-009), "FY 1999 Waste Operations Program Baseline Approval." In addition, a joint senior level DOE-ID and LMITCO Independent Murder Board Review of the INEEL decision units was conducted in February, 1996. Six teams consisting of six members reviewed the scope, schedule, cost estimates, and basis of estimates for each of the decision units, which are the same base elements used to construct the draft PBS. Further baseline validations occurred by the Army Corps of Engineers during a site visit in May, 1997 and by a senior level DOE-ID and LMITCO Waste Operations Review Team in August, 1997. In July 1998, the Army Corps of Engineers conducted a comprehensive review of the Facility Operations and Turnover Project baseline that included interviews with key members of the project team. Recommendations from this review have been incorporated into FY 1999 baseline development.

## General PBS Information

**Project Validated?**

**Date Validated:**

**Has Headquarters reviewed and approved project?**

No

**Date Project was Added:** 12/1/1997

**Baseline Submission Date:**

**FEDPLAN Project?** Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	Y	Y	N	Y	Y	Y

## Project Identification Information

**DOE Project Manager:** Jerry L. Wells

**DOE Project Manager Phone Number:** 208-526-5296

**DOE Project Manager Fax Number:** 208-526-0160

**DOE Project Manager e-mail address:** wellsjl@inel.gov

**Is this a High Visibility Project (Y/N):**

## Planning Section

Dataset Name: **FY 1999 Planning Data**

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# Project Baseline Summary Report

Data Source: EM CDB

Report Number: GEN-01b

Operations/Field Office: Idaho

Print Date: 3/10/2000

Site Summary Level: Idaho National Engineering and Environmental Laboratory

HQ ID: 0187

Project ID-WM-103 / INEEL Transuranic Waste

## Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	306,215	0	306,215	34,291	40,976	36,646	35,613	37,345	42,151	41,561	40,735	28,011	19,114	15,469	10,892	
PBS Baseline (constant 1999 dollars)	292,701	0	292,701	34,291	40,976	36,646	35,613	37,345	41,043	39,636	38,049	25,626	17,127	13,576	9,362	
PBS EM Baseline (current year dollars)	306,215	0	306,215	34,291	40,976	36,646	35,613	37,345	42,151	41,561	40,735	28,011	19,114	15,469	10,892	
PBS EM Baseline (constant 1999 dollars)	292,701	0	292,701	34,291	40,976	36,646	35,613	37,345	41,043	39,636	38,049	25,626	17,127	13,576	9,362	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

## Project Reconciliation

### Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2006

Current Projected End Date of Project: 9/30/2006

Explanation of Project Completion Date Difference (if applicable):

N/A

### Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	281,346	Actual 1997 Cost:	40,976	Actual 1998 Cost:	35,613
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	204,757	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			5,528
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	210,285				

### Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	7,000	RTR Procurement and implementation of inventory augmentation methodologies.
Cost Growth Associated with Scope Previously Reported (+):	4,479	Implement activities to support sustained, reliable operations with 80% system availability.
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	221,764	
Additional Amount to Reconcile (+):	0	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	221,764	

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## Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Complete Shipment of 940m3 of TRU Waste to WIPP	01450	3QV5E9B	9/30/2000								Y
Complete Shipment of 974.7m3 of TRU Waste to WIPP	01620	3QV5E9E	9/30/2001								Y
Complete Shipment of 1029.6m3 of TRU Waste to WIPP	01790	3QV5E9H	9/30/2002								Y
Complete Two Out-of-State Waste Shipments	01251	3QV5ECK	4/30/1999								Y
Complete shipment of 3100 m3 of CH-TRU to WIPP per Settlement Agr	01840	3QV5E9K	12/30/2002	12/31/2002			Y				Y
First TRU Waste Shipment to WIPP	01280	3QV5E98	4/30/1999	4/30/1999			Y				Y
Transition to Long-Term TSD PBS	01095	3SQF9D7	9/30/2006								
Complete first TRU shipment out of the State of Idaho.			4/30/1999	4/30/1999			Y		Y		Y
Project Start			10/1/1996								

## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Complete Shipment of 940m3 of TRU Waste to WIPP	01450	3QV5E9B									
Complete Shipment of 974.7m3 of TRU Waste to WIPP	01620	3QV5E9E									
Complete Shipment of 1029.6m3 of TRU Waste to WIPP	01790	3QV5E9H									
Complete Two Out-of-State Waste Shipments	01251	3QV5ECK									
Complete shipment of 3100 m3 of CH-TRU to WIPP per Settlement Agr	01840	3QV5E9K									

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## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
First TRU Waste Shipment to WIPP	01280 3QV5E98										
Transition to Long-Term TSD PBS	01095 3SQF9D7				Y						
Complete first TRU shipment out of the State of Idaho.											
Project Start				Y							Project start milestone

## Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
TRU														
Treatment	M3	0.00	0.00	0.00				0.00	0.00	0.00	0.00	0.00		
TRU														
Storage	M3							64,809.00	64,765.32	64,063.12	62,968.32	61,825.92	85.00	85.00
TRU														
Ship. to WIPP	M3	3,185.00	0.00	3,185.00	0.00		0.00	0.00	43.68	702.20	1,094.80	1,142.40	136.92	
Tech.														
Deployed	Ntd	1.00	0.00	1.00					1.00					
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	
TRU														
Treatment	M3													
TRU														
Storage	M3	85.00	85.00	20.00										

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
TRU													
Ship. to WIPP Tech.	M3		0.00	65.00									
Deployed	Ntd												
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total			
TRU													
Treatment	M3									0.00			
TRU													
Storage	M3												
TRU													
Ship. to WIPP Tech.	M3									3,167.32			
Deployed	Ntd									1.00			

## Technology Needs

Site Need Code: ID-3.1.06

Site Need Name: Advanced Nuclear Assay for CH-TRU Waste Drums

Focus Area Work Package ID: MW-01

Focus Area Work Package: Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

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## Technology Needs

Waste Inspection Tomography (WIT)	0
Nondestructive Waste Assay Using Combined Thermal Epithermal Neutron Interrogation	
NDA Support of the CAO's Performance Demonstration Program	0
Nondestructive Waste Assay Using Gamma-Ray Active and Passive Computed Tomography	
NDA Capability Evaluation Project	0
Expert System Development for NDA Data Validation	

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

02422: DA - CH Containers (98-2015)

Y

N

00814: AA - CH Containers (98-2002)

Y

N

00815: AB - CH Containers (2003-2015)

Y

N

**Site Need Code:** ID-3.1.32

**Site Need Name:** Develop NDA Capability for Remote-Handled TRU Waste and Contact-Handled TRU Waste with Shielded RH Components

**Focus Area Work Package ID:** MW-01

**Focus Area Work Package:** Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

**Focus Area:** MWFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Characterization of Remote-Handled Waste Drums using High Speed Neutron Detectors

Characterization of Remote - Handled Waste Drums using Multi Detector Analysis System

Characterization of Remote-Handled Waste Drums using Gamma Spectrometry Combined with Acceptable Knowledge

Characterization of Remote-Handled Drums using Radio-Frequency Quadrupole (RFQ) Based Active Neutron Interrogation

Solutions for TRU Waste Streams without Disposition Options

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## Technology Needs

### Related CCP Milestones

Site Need Code: ID-3.1.41

Site Need Name: WERF Fly Ash Stabilization

Focus Area Work Package ID: Pu-02-Stabilization

Focus Area: PLUTOFA

Benefits (Cost, Risk Reduction, Both): Cost

### Technologies

Site Need Code: ID-3.1.33

Site Need Name: Develop In-Situ Hydrogen and Volatile Organic Compound (VOC) Reduction

Focus Area Work Package ID: MW-05

Focus Area: MWFA

Benefits (Cost, Risk Reduction, Both): Both

### Technologies

Hydrogen Gas Getters

Matrix Depletion Program Support

Flammable Gas Headspace Measurement

Deployment of TRU Solutions

Solutions for TRU Waste Streams without Disposition Options

### Related CCP Milestones

### Related Waste Streams

00827: AI - RH Components to RWMC

Focus Area Work Package: Miscellaneous Pu Residue Stabilization and Disposition

Agree with Technology Link: N

Focus Area Work Package: Payload Enhancement for Transporting TRU Waste within Restrictive Regulatory Limits

Agree with Technology Link: Y

### Related Waste Streams

### Agree?

Y

### Change?

N

### Cost Savings (in thousands of dollars)

### Cost Savings (in thousands of dollars)

0

### Range of Estimate

### Range of Estimate

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## Technology Needs

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00814: AA - CH Containers (98-2002)

Y

N

**Site Need Code:** ID-3.1.34

**Site Need Name:** Confinement Layer Reduction in CH-TRU Waste Drums

**Focus Area Work Package ID:** MW-05

**Focus Area Work Package:** Payload Enhancement for Transporting TRU Waste within Restrictive Regulatory Limits

**Focus Area:** MWFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Both

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Solutions for TRU Waste Streams without Disposition Options

Solutions for TRU Waste Streams without Disposition Options

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00814: AA - CH Containers (98-2002)

Y

N

**Site Need Code:** ID-3.1.35

**Site Need Name:** Stored Waste Examination Pilot Plant (SWEPP) Real Time Radiography (RTR) Software for Data Automation.

**Focus Area Work Package ID:** MW-01

**Focus Area Work Package:** Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

**Focus Area:** MWFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):**

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00814: AA - CH Containers (98-2002)

Y

N

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## Technology Needs

Site Need Code: ID-3.1.37

Site Need Name: Improve TRU Reporting and Inventory Processing System (TRIPS)

Focus Area Work Package ID: MW-05

Focus Area Work Package: Payload Enhancement for Transporting TRU Waste within Restrictive Regulatory Limits

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Both

### Technologies

Expert System Development for NDA Data Validation

### Cost Savings (in thousands of dollars)

### Range of Estimate

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00814: AA - CH Containers (98-2002)

Y

N

Site Need Code: ID-3.1.38

Site Need Name: Separate TRU Waste Drum Venting from Headspace Gas Sampling.

Focus Area Work Package ID: MW-05

Focus Area Work Package: Payload Enhancement for Transporting TRU Waste within Restrictive Regulatory Limits

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00814: AA - CH Containers (98-2002)

Y

N

Site Need Code: ID-3.1.46

Site Need Name: Develop NDE Capability for Remote-Handled TRU Waste and Contact-Handled TRU Waste with Shielded RH Components

Focus Area Work Package ID: MW-01

Focus Area Work Package: Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

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HQ ID: **0187**

## Technology Needs

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Solutions for TRU Waste Streams without Disposition Options

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00827: AI - RH Components to RWMC

Y

N

00818: AD - RH Components

Y

N

Site Need Code: ID-S.1.03

Site Need Name: Efficient and Safe Hydrogen Gas Getters for the Reduction of Hydrogen Gas in TRU Waste Containers

Focus Area Work Package ID: MW-05

Focus Area Work Package: Payload Enhancement for Transporting TRU Waste within Restrictive Regulatory Limits

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Both

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Hydrogen Gas Getters

Solutions for TRU Waste Streams without Disposition Options

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00814: AA - CH Containers (98-2002)

Y

N

Site Need Code: ID-S.1.05

Site Need Name: Nondestructive Assay (NDA) Capability for Remote-Handled Transuranic Waste

Focus Area Work Package ID: MW-01

Focus Area Work Package: Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

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## Technology Needs

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Characterization of Remote-Handled Waste Drums using High Speed Neutron Detectors

Characterization of Remote - Handled Waste Drums using Multi Detector Analysis System

Characterization of Remote-Handled Waste Drums using Gamma Spectrometry Combined with Acceptable Knowledge

Characterization of Remote-Handled Drums using Radio-Frequency Quadrupole (RFQ) Based Active Neutron Interrogation

Solutions for TRU Waste Streams without Disposition Options

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

00827: AI - RH Components to RWMC

Y

N

**Site Need Code:** ID-S.2.02

**Site Need Name:** Nondestructive Assay (NDA) for Resource Conservation and Recovery Act Metal and Chlorine in Incinerator Feed

**Focus Area Work Package ID:** MW-01

**Focus Area Work Package:** Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

**Focus Area:** MWFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Both

### Technologies

### Cost Savings (in thousands of dollars)

### Range of Estimate

Characterization of RCRA Material Non-Destructive Assay Development

Characterization of Contact-Handled Waste Containers for RCRA Material using Pulsed Fast Thermal Neutron Analysis

Pulsed Gamma Neutron Activation Analysis (PGNAA) System for the Assay of RCRA Metals in Mixed Waste

Solutions for TRU Waste Streams without Disposition Options

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

02039: AAJ - Sludges/Liquids/Debris/Labpacks to WERF

Y

N

02034: AAE - Sludges/Liquids/Debris/Lab Packs to WROC

Y

N

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## Technology Needs

### Related CCP Milestones

### Related Waste Streams

### Agree?

### Change?

02041: AAL - Sludges/Liquids-Debris-Lab Packs-HEPAs-Lead

Y

N

02030: AAA - Sludges/Liquids-Debris-HEPAs-Lab Packs-Elemental Lead &

Y

N

02038: AAI - Elemental Lead

Y

N

02045: AAP - Debris/PCB Liquids-Onsite

Y

N

## Technology Deployments

### Deployment Year

### Deployment Status

### Planned

### Forecast

### Actual Date

**Technology Name:** Expert System Development for NDA Data Validation

Deployment Commitment

1999

1/15/1999